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Whether optimum pollen germination and tube length attained in the same concentrations of the growth medium (Sucrose + Calcium chloride) by five cultivars of apocynaceae : Further evidence of a criticism of Banerji and Gangulee (1937), Brewbaker and Kwack (1963), Sudhakaran (1967-Ph.D. Thesis), Dharurkar (1971-Ph.D. Thesis), Nair, Nambudiri and Thomas (1973)*

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SUMMARY

Pollen of F-48 and F-72 series of pink-flowered cultivar of *Catharanthus roseus* failed to germinate in all the concentrations (1-1000 mg/ml) of calcium chloride.

Key words : Physiology of Pollen, Palylnology, Environmental Sciences

In recent years (Salgare, 1986) the importance of gaining a knowledge on the germination potential of pollen in the bud stage of floral development has been realized, because of its possible applications in pollen storage and its subsequent use in plant breeding programmes.

MATERIALS AND METHODS

Pollen of successive flowers (*viz.* F, F-24, F-48, F-72 series *i.e.* open flowers and the flower buds which require 24, 48, 72 hours to open respectively) of 5 cultivars of Apocynaceae *e.g.* red-, pink- and white-flowered cultivars of *Nerium odorum* Soland. and pink- and white-flowered cultivars of *Catharanthus roseus* (L.) G. Don. were collected soon after the dehiscence of anthers in the open flowers. Germination of pollen grains was studied by standing-drop technique in the optimum concentrations of sucrose which acts as control as well as in the optimum concentrations of sucrose supplemented with the wide range of concentrations (1, 5, 10, 20-20-100, 200-200-1000 mg/ml) of mineral (calcium chloride). The cultures then transferred to a moist filter chamber, stored at room temperature (28.3-31.5°C) having RH 66% and in diffuse laboratory light. The experiments were run in triplicate and average results were recorded. Observations on the germination of pollen and tube growth were recorded 24 hours after incubation. For each experiment a random count of 200 grains was made to determine the percentage of pollen germination. For measurement of length of pollen tubes, 50 tubes were selected randomly and measured at a magnification of 100x.

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RESULTS AND DISCUSSION

Banerji and Gangulee (1937) and Dharurkar (1971-Ph.D.Thesis) reported higher percentage of pollen germination than the pollen viability in *Eichhornia crassipes.* The present findings as well as the extensive work of Salgare (2006) disproved the findings of Banerji and Gangulee (1937) and Dharurkar (1971).

Salgare (1986, 2006) observed the germination of pollen of F-72 series of pink-flowered cultivar of *Catharanthus roseus in vitro* culture of sucrose. Trisa Palathingal (1990) stated that the pollen of F-72 series of pink-flowered cultivar of *C. roseus* failed to germinate in Brewbaker and Kwack's (1963) culture medium. This confirms that Brewbaker and Kwack's (1963) culture medium is not perfect.

Pollen of F-48 and F-72 series of pink-flowered cultivar of *C. roseus* failed to germinate in all the concentrations of calcium chloride, while none of the concentrations of the mineral could stimulate the germination of pollen of F-24 series of *C. roseus* (Table 1).

1-1000 mg/ml proved to be the widest range of concentrations of calcium chloride which stimulated the germination of pollen of Apocynaceae. An optimum concentration produced as high as 200.00% and as low as 13.64% stimulation in the germination of pollen of Apocynaceae (Table 1).